

Uniformization of curves: archimedean vs non-archimedean

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An algebraic curve is said to admit uniformization if it can be described as the quotient of an open subset of the projective line by the action of a discrete subgroup of its group of transformations. This property is enjoyed by complex curves, as well as by some non-archimedean curves, and is tightly related to arithmetic. In this talk, I will present analogies and differences between the archimedean and the non-archimedean uniformizations, with an emphasis on the case of elliptic curves, that can be described more explicitly. Then, I will explain how the theory of Berkovich spaces helps us to understand the uniformization of curves, opening the way to interesting connections between non-archimedean analytic geometry and tropical geometry. If time permits, I will sketch the construction of a Berkovich space that allows to study archimedean and non-archimedean uniformizations in a single framework (joint with Jérôme Poineau).